adolescence (Akiskal, 1983; Klein et al., 1997). The child or adolescent is depressed for most of the day, on most days, and symptoms continue for several years. The average duration of a dysthymic period in children and adolescents is about 4 years (Kovacs et al., 1997a). Sometimes children are depressed for so long that they do not recognize their mood as out of the ordinary and thus may not complain of feeling depressed. Seventy percent of children and adolescents with dysthymia eventually experience an episode of major depression[6] (Kovacs et al., 1994). When a combination of major depression and dysthymia occurs, the condition is referred to as *double depression*.

*Bipolar disorder* is a mood disorder in which episodes of mania alternate with episodes of depression. Frequently, the condition begins in adolescence. The first manifestation of bipolar illness is usually a depressive episode. The first manic features may not occur for months or even years thereafter, or may occur either during the first depressive illness or later, after a symptom-free period (Strober et al., 1995).

The clinical problems of mania are very different from those of depression. Adolescents with mania or hypomania feel energetic, confident, and special; they usually have difficulty sleeping but do not tire; and they talk a great deal, often speaking very rapidly or loudly. They may complain that their thoughts are racing. They may do schoolwork quickly and creatively but in a disorganized, chaotic fashion. When manic, adolescents may have exaggerated or even delusional ideas about their capabilities and importance, may become overconfident, and may be "fresh" and uninhibited with others; they start numerous projects that they do not finish and may engage in reckless or risky behavior, such as fast driving or unsafe sex. Sexual preoccupations are increased and may be associated with promiscuous behavior.

*Reactive depression*, also known as adjustment disorder with depressed mood, is the most common form of mood problem in children and adolescents. In

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[6] Major depression refers to conditions marked by a major depressive episode, such as major depressive disorder, bipolar disorder, and related conditions. The word "major" refers to the number of symptoms. See Chapter 4 for DSM-IV diagnostic criteria.

children suffering from reactive depression, depressed feelings are short-lived and usually occur in response to some adverse experience, such as a rejection, a slight, a letdown, or a loss. In contrast, children may feel sad or lethargic and appear preoccupied for periods as short as a few hours or as long as 2 weeks. However, mood improves with a change in activity or an interesting or pleasant event. These transient mood swings in reaction to minor environmental adversities are not regarded as a form of mental disorder.

## Conditions Associated Wjth Depression

Roughly two-thirds of children and adolescents with major depressive disorder also have another mental disorder (Angold & Costello, 1993; Anderson & McGee, 1994). The most commonly associated disorders are dysthymia (see above), an anxiety disorder, a disruptive or antisocial disorder, or a substance abuse disorder. When more than one diagnosis is present, depression is more likely to begin after the onset of the accompanying disorder, except when that disorder is substance abuse (Biederman et al., 1995; Kessler & Walters, 1998). This suggests that, in some cases, depression may arise in response to the associated disorder. In other instances, such as the co-occurrence of conduct disorder and depression, the two may arise independently in response to inadequate maternal supervision and control, raising the possibility that parental behavior may be a risk factor for both conditions (Downey & Coyne, 1990; Rutter & Sandberg, 1992; Harrington, 1994).

## Prevalence

### Major Depression

Population studies show that at any one time between 10 and 15 percent of the child and adolescent population has *some* symptoms of depression (Smucker et al., 1986). The prevalence of the full-fledged diagnosis of major depression among all children ages 9 to 17 has been estimated at 5 percent (Shaffer et al., 1996c). Estimates of 1-year prevalence in children range from 0.4 and 2.5 percent and in adolescents, considerably higher (in some studies, as high as 8.3

percent) (Anderson & McGee, 1994; Lewinsohn et al., 1994a; Garrison et al., 1997; Kessler & Walters, 1998). For purposes of comparison, 1-year prevalence in adults is about 5.3 percent (Murphy et al., 1988; Rorsman et al., 1990; Regier et al., 1993).

### Dysthymic Disorder

The prevalence of dysthymic disorder in adolescents has been estimated at around 3 percent (Garrison et al., 1997). Before puberty, major depressive disorder and dysthymic disorder are equally common in boys and girls (Rutter, 1986). But after age 15, depression is twice as common in girls and women as in boys and men (Weissman & Klerman, 1977; McGee et al., 1990; Linehan et al., 1993).

### Suicide

In 1996, the age-specific mortality rate from suicide was 1.6 per 100,000 for 10- to 14-year-olds, 9.5 per 100,000 for 15- to 19-year-olds (i.e., about six times higher than in the younger age group; in this age group, boys are about four times as likely to commit suicide than are girls, while girls are twice as likely to attempt suicide), compared with 13.6 per 100,000 for 20- to 24-year-olds (CDC, 1999). Hispanic high school students are more likely than other students to attempt suicide (CDC, 1998). There have been some notable changes in these rates over the past few decades: since the early 1960s, the reported suicide rate among 15- to 19-year-old males increased threefold but remained stable among females in that age group and among 10- to 14-year-olds (National Center for Health Statistics, 1998); the rate among white adolescent males reached a peak in the late 1980s (18.0 per 100,000 in 1986) and has since declined somewhat (16.0 per 100,000 in 1997), whereas among African American male adolescents, the rate increased substantially in the same period (from 7.1 per 100,000 in 1986 to 11.4 per 100,000 in 1997 (CDC, 1998). From 1979 to 1992, the Native American male adolescent and young adult suicide rate in Indian Health Service Areas was the highest in the Nation, with a suicide rate of 62.0 per 100,000 (Wallace et al., 1996).

It has been proposed that the rise in suicidal behavior among teenage boys results from increased availability of firearms (Boyd, 1983; Boyd & Moscicki, 1986; Brent et al., 1987; Brent et al., 1991) and increased substance abuse in the youth population (Shaffer et al., 1996c; Birckmayer & Hemenway, 1999). However, although the rate of suicide by firearms increased more than suicide by other methods (Boyd, 1983; Boyd & Moscicki, 1986; Brent et al., 1987), suicide rates also increased markedly in many other countries in Europe, in Australia, and in New Zealand, where suicide by firearms is rare.

### Course and Natural History

Most children with depression experience a recurrence. Twenty to 40 percent of depressed children relapse within 2 years, and 70 percent will do so by adulthood (Garber et al., 1988; Velez et al., 1989; Harrington et al., 1990; Fleming et al., 1993; Kovacs et al., 1994; Lewinsohn et al., 1994a; Garrison et al., 1997). The reasons for relapse are not known, but there is some evidence that experiencing a depression leaves behind psychological "scars" that may increase vulnerability throughout early life (see below).

The age of first onset of depression appears to play a role in its course. Children who first become depressed before puberty are at risk for some form of mental disorder in adulthood, while teenagers who first become depressed after puberty are most likely to experience another episode of depression (Harrington et al., 1990; McCracken, 1992a; Lewinsohn et al., 1994a, 1994b; Rao et al., 1995). These differences in outcome suggest that different mechanisms may lead to superficially similar but inherently different clinical conditions. Factors that worsen the prognosis for depressed children and adolescents include depression occurring in the context of conduct disorder (Harrington et al., 1990; Asarnow et al., 1994) and living in conflict-ridden families (Asarnow et al., 1994). Children and particularly adolescents who suffer from depression are at much greater risk of committing suicide than are children without depression (Shaffer et al., 1996b).

The prognosis for dysthymia (Klein et al., 1997a) is unfavorable, with most patients continuing to feel depressed and to have social difficulties even after they have apparently recovered. The prognosis for double depressives (major depressive disorder plus dysthymia) is worse than that for either condition alone (Kovacs et al., 1994).

Twenty to 40 percent of adolescents with depression eventually develop bipolar disorder. Factors that predict later bipolar disorder include young age at the time of the first depressive episode, psychotic features in the initial depression, a family history of bipolar illness, and symptoms of hypomania developing during treatment with antidepressant drugs (Garber et al., 1988; Strober et al., 1993).

## Causes

The precise causes of depression are not known. Extensive research on adults with depression generally points to both biological and psychosocial factors (Kendler, 1995). However, there has been substantially less research on the causes of depression in children and adolescents. Further discussion of the risk factors for depression can be found in Chapter 4, as well as the preceding Overview of Risk Factors and Prevention section.

### Family and Genetic Factors

Much of the research on children and adolescents with depression has been conducted with those who attend mental health clinics and with patients who tend to have the more severe and recurrent forms of depression, and thus they may not be representative of all children and adolescents with depression. With this limitation, research has shown that between 20 and 50 percent of depressed children and adolescents have a family history of depression (Puig-Antich et al., 1989; Todd et al., 1993; Williamson et al., 1995; Kovacs, 1997b). Family research has found that children of depressed parents are more than three times as likely as children with nondepressed parents to experience a depressive disorder (see Birmaher et al., 1996a, 1996b for a review). They also are more vulnerable to other mental and somatic disorders (Downey & Coyne,

1990). Conversely, estimates of the proportion of depressed parents who have a depressed child or adolescent vary from approximately one in six to just under a half (Hammen et al., 1990). It is not clear whether the relationship between parent and childhood depression derives from genetic factors, or whether depressed parents create an environment that increases the likelihood of a mental disorder developing in their children (see below).

### Gender Differences

One reason advanced to explain the greater prevalence of depression in adolescent girls (see above) is that they are more socially oriented, more dependent on positive social relationships, and more vulnerable to losses of social relationships than are boys (Allgood-Merten et al., 1990). This would increase their vulnerability to the interpersonal stresses that are common in teenagers. There is also evidence that the methods girls use to cope with stress may entail less denial and more focused and repetitive thinking about the event (Nolen-Hoeksema & Girgus, 1994). The higher prevalence, therefore, could be a result of greater vulnerability, combined with coping mechanisms different than those of boys.

### Biological Factors

Some of the core symptoms of depression, such as changes in appetite and sleep patterns, are related to the functions of the hypothalamus. The hypothalamus is, in turn, closely tied to the function of the pituitary gland. Abnormalities of pituitary function, such as increased rates of circulating cortisol and hypo- or hyperthyroidism, are well established features of depression in adults (Goodwin & Jamison, 1990). However, far less research has been done in this area among children and adolescents (see Birmaher et al., 1996a, 1996b for a review). It is in the neuroendocrine area that most research has been done on child and adolescent depression (see Birmaher et al., 1996a, b). In suicidal adults dysregulation of the serotonergic system is common (Mann, 1998; Pine et al., 1995), making them typically impulsive, intense, and given to extreme reactions. However, little is known about the

association between abnormal serotonin metabolism and suicidal behavior in children and adolescents.

## Cognitive Factors

For over two decades there has been considerable interest in the relationship between a particular "mindset" or approach to perceiving external events and a predisposition to depression. The mindset in question is known as a pessimistic "attribution bias" (Abramson et al., 1978; Beck, 1987; Hops et al., 1990). A person with this mindset is one who readily assumes personal blame for negative events ("All the problems in the family are my fault"), who expects that one negative experience is part of a pattern of many other negative events ("Everything I do is wrong"), and who believes that a currently negative situation will endure permanently ("Nothing I do is going to make anything better"). Such pessimistic individuals take a characteristically negative view of positive events (i.e., that they are a result of someone else's effort, that they are isolated events, and that they are unlikely to recur). Individuals with this mindset react more passively, helplessly, and ineffectively to negative events than those without a pessimistic mindset (Seligman, 1975).

There is uncertainty over whether this mindset precedes depression (and represents a permanent style of thinking as part of an individual's personality), is a manifestation of depression that is only present when the patient is depressed, and/or is a consequence or "scar" of a previous, perhaps unnoticed, depressive episode (Lewinsohn et al., 1981). This pessimistic mode of thinking does not occur in children under age 5, which could be one of the reasons why depression and suicide are rare in early childhood (Rholes et al., 1980; Rotenberg, 1982).

There is evidence that children and adolescents who previously have been depressed may learn, during their depression, to interpret events in this fashion. This may make them prone to react similarly to negative events experienced after recovery, which could be one of the reasons why previously depressed children and adolescents are at continuing risk for depression (Nolen-Hoeksema et al., 1993).

Perceptions of hopelessness, negative views about one's own competence, poor self-esteem, a sense of responsibility for negative events, and the immutability of these distorted attributions may contribute to the hopelessness that has been repeatedly found to be associated with suicidality (Overholser et al., 1995).

## Risk Factors for Suicide and Suicidal Behavior

There is good evidence that over 90 percent of children and adolescents who commit suicide have a mental disorder before their death (Shaffer & Craft, 1999). The most common disorders that predispose to suicide are some form of mood disorder, with or without alcoholism or other substance abuse problem, and/or certain forms of anxiety disorder (Shaffer et al., 1996b). Psychological postmortem studies also show that a significant proportion of suicide victims suffered from an anxiety disorder at the time of their death, but the number of victims has been too small to yield precise odds ratios for the calculation of an effect. Although the rate of suicide is greatly increased in schizophrenia, because of its rarity, it accounts for very few suicides in the child and adolescent age group.

Controlled studies of completed suicide suggest similar risk factors for boys and girls (Shafii et al., 1985; Brent et al., 1988; Groholt et al., 1997), but with marked differences in their relative importance (Shaffer et al., 1996c).

Among girls, the most significant risk factor is the presence of major depression, which, in some studies, increases the risk of suicide 12-fold. The next most important risk factor is a previous suicide attempt, which increases the risk approximately threefold. Among boys, a previous suicide attempt is the most potent predictor, increasing the rate over 30-fold. It is followed by depression (increasing the rate by about 12-fold), disruptive behavior (increasing the rate by twofold), and substance abuse (increasing the rate by just under twofold) (Shaffer et al., 1996c).

Stressful life events often precede a suicide and/or suicide attempt (de Wilde et al., 1992; Gould et al., 1996). As indicated earlier, these stressful life events include getting into trouble at school or with a law

enforcement agency; a ruptured relationship with a boyfriend or a girlfriend; or a fight among friends.[7] They are rarely a sufficient cause of suicide, but they can be precipitating factors in young people.

Controlled studies (Gould et al., 1996; Hollis, 1996) indicate that low levels of communication between parents and children may act as a significant risk factor. While family discord, lack of family warmth, and disturbed parent-child relationship are commonly associated with child and adolescent psychopathology (violent behavior, mood disorder, alcohol and substance abuse disorders) (Brent et al., 1994; Pfeffer et al., 1994), these factors do not play a specific role in suicide (Gould et al., 1998).

Evidence has accumulated that supports the observation that suicide can be facilitated in vulnerable teens by exposure to real or fictional accounts of suicide (Velting & Gould, 1997), including media coverage of suicide, such as intensive reporting of the suicide of a celebrity, or the fictional representation of a suicide in a popular movie or TV show. The risk is especially high in the young, and it lasts for several weeks (Gould & Shaffer, 1986; Phillips et al., 1989). The suicide of a prominent person reported on television or in the newspaper or exposure to some sympathetic fictional representation of suicide may also tip the balance and make the at-risk individual feel that suicide is a reasonable, acceptable, and in some instances even heroic, decision (Gould & Shaffer, 1986).

The phenomenon of suicide clusters is presumed to be related to imitation (Davidson, 1989). Suicide clusters nearly always involve previously disturbed young people who knew about each other's death but rarely knew the other victims personally (Gould, personal communication, 1999).

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[7] The relationship between sexual orientation, depression, and suicidal thoughts and behavior is not well understood. Several studies suggest a link (Faullener & Cranston, 1998; Garofolo et al., 1998; Garofolo et al., 1999).

## Consequences

Both major depressive disorder and dysthymic disorder are inevitably associated with personal distress, and if they last a long time or occur repeatedly, they can lead to a circumscribed life with fewer friends and sources of support, more stress, and missed educational and job opportunities (Klein et al., 1997). The psychological scars of depression include an enduring pessimistic style of interpreting events, which may increase the risk of further depressive episodes. Impairment is greater for those with dysthymic disorder than for those with major depression (Klein et al., 1997a), presumably because of the longer duration of depression in dysthymic disorder, which is also a prime risk factor for suicide. In a 10- to 15-year followup study of 73 adolescents diagnosed with major depression, 7 percent of the adolescents had committed suicide sometime later. The depressed adolescents were five times more likely to have attempted suicide as well, compared with a control group of age peers without depression (Weissman et al., 1999).

## Treatment

### *Depression*
*Psychosocial Interventions*

To be deemed effective and approved by the American Psychological Association, treatments for mental disorders have to meet very strict criteria. While interpersonal therapy and systemic family therapy show promise, they have not been studied sufficiently to evaluate their effectiveness by these standards. However, in a comprehensive review article (Kaslow & Thompson, 1998) that evaluated interventions for depression in children and adolescents against the American Psychological Association Task Force criteria, two forms of cognitive-behavioral therapy (CBT) were found to be "probably effective treatments," although none of the interventions for depression were deemed, as yet, to meet the Association's higher standard for a *well-established* intervention.

155

In studies that focused on relieving symptoms of depression in preadolescents, only one form of CBT met the criteria for a *probably effective* intervention. In the first study, the relative efficacy of two types of CBT—12-session group interventions based on either self-control therapy or behavior-solving therapy—were compared with a "waiting list" control group (Stark et al., 1987). Children responded to both CBT interventions with fewer symptoms of depression and anxiety, whereas the waiting list group exhibited minimal change. Because improvement was greatest with self-control therapy, this intervention was compared in a later study with a traditional counseling condition. Self-control therapy, enhanced by doubling the number of sessions, entailed social skills training, assertiveness training, relaxation training and imagery, and cognitive restructuring. Monthly family meetings were also added to both the experimental and control conditions. Children receiving self-control therapy reported fewer symptoms at 7-month followup (Stark et al., 1991).

Among the numerous studies of adolescents reviewed by Kaslow and Thomson (1998), one form of CBT—coping skills—was judged *probably efficacious*. This intervention, based on the "Coping with Depression" course, was developed originally in Oregon for adults by Lewinsohn and colleagues (Lewinsohn et al., 1996) and adapted by Clarke and colleagues (1992) for school-based programs to treat adolescent depression. Compared with controls on the waiting list, adolescents who received CBT had lower rates of depression, less self-reported depression, improvement in cognitions, and increased activity levels (Lewinsohn et al., 1990, 1996). To achieve *well-established* status, as defined by the American Psychological Association Task Force, the intervention has to be studied by another team of investigators—which has not as yet been done.

## Pharmacological Treatment

Prior to 1996, the medications of choice for major depression in children and adolescents were the tricyclic antidepressants, a choice based on numerous studies in adults. However, 13 distinct trials in children and adolescents failed to demonstrate the efficacy of tricyclic antidepressants for younger ages. Tricyclic antidepressants also have a higher risk of toxicity than selective serotonin reuptake inhibitors (SSRIs) (Walsh et al., 1994; Kutcher, 1998). The current consensus is that tricyclic medications are not the medication of choice for depressed children and adolescents (Eisenberg, 1996; Fisher & Fisher, 1996).

Recent research indicates that young people with depressive disorders may respond more favorably to SSRIs than to tricyclic antidepressants. The first SSRI tested in children and adolescents was fluoxetine. In a study of 96 outpatients over 8 weeks, 56 percent receiving fluoxetine and 33 percent receiving placebo were "much" or "very much" improved on the Clinical Global Improvement Scale. Benefits were comparable across age groups. Complete symptom remission occurred for 31 percent of fluoxetine-treated patients compared with 23 percent of placebo-treated patients (Emslie et al., 1997). A recent open trial of fluoxetine for adolescents hospitalized for treatment of major depression found it to decrease depression scores more effectively than imipramine, a tricyclic antidepressant (Strober et al., 1999), with the further advantage that fluoxetine was well tolerated.

The safety of a second SSRI, paroxetine, was demonstrated in a multicenter double-blind placebo-controlled trial. Paroxetine was compared with imipramine and placebo in 275 adolescents who met the DSM-IV criteria for major depression. Preliminary results indicate that, mostly because of side effects, one-third of imipramine patients withdrew from the study, a proportion significantly higher than that for paroxetine (10 percent) and placebo (7 percent) (Wagner et al., 1998). One of the co-investigators of this study noted that paroxetine's efficacy was superior

to that of imipramine and placebo on the Clinical Global Improvement Scale (Graham Emslie, personal communication, October 1998). However, final conclusions about the benefit of this second SSRI must await publication of the outcomes of this multicenter study.

In summary, psychosocial interventions for depressed children and adolescents indicate great promise, with several types of cognitive-behavioral therapy for the child or adolescent leading the way. With respect to pharmacotherapy, new studies attest to the safety and efficacy of two SSRIs. These promising findings are being extended in the recently begun NIMH-funded Treatment of Adolescents with Depression study.

### Bipolar Disorder

*Pharmacological Treatment*
The treatment of bipolar disorder entails treating symptoms of both depression and mania. For decades, lithium has been the well-researched mainstay treatment for mania in adults. Mania in bipolar disorder of children is also treated with lithium, although the relevant research on children lags behind that on adults. Only in recent years have researchers begun to study lithium in children and adolescents, with good clinical response. Open trials of lithium were conducted in the late 1980s (Varanka et al., 1988; Strober et al., 1990). More recently, lithium proved to be more effective than placebo in treating adolescents who were bipolar and substance dependent (Geller et al., 1998).

Children experience the same safety problems with lithium as do adults: toxicity and impairment of renal and thyroid functioning (Geller & Luby, 1997). Lithium is therefore not recommended for families unable to keep regular appointments that would ensure monitoring of serum lithium levels and of adverse events. Patients who discontinue taking the drug have a high relapse rate (Strober et al., 1990).

As yet, there are no controlled studies on a number of other psychotropic agents also used clinically in children and adolescents with bipolar disorder,

including valproate, carbamazepine, methylphenidate, and low-dose chlorpromazine (Campbell & Cueva, 1995; Geller & Luby, 1997).

### Suicide

*Psychotherapeutic Treatments*
Suicidal children and adolescents report feelings of intense emotional distress involving depression, anger, anxiety, hopelessness, and worthlessness and an inability to change problematic, frustrating circumstances or to find a solution to their problems (Kienhorst et al., 1995; Ohring et al., 1996). They feel so distraught that they often respond impulsively to their despair. Psychotherapeutic techniques aim to decrease such intolerable feelings and thoughts and to re-orient the cognitive and emotional perspectives of the suicidal child or adolescent (Kernberg, 1994; Spirito, 1997).

Cognitive-behavioral therapy (CBT) may be a useful intervention, considering that suicidal children and adolescents often experience negative cognitions about themselves, their environment, and their futures. Recent research suggests that CBT may be more effective than systemic behavior family therapy or individual nondirective supportive therapy in reducing depressive symptoms associated with suicidal ideation (Brent et al., 1997). Such treatment can focus on re-attribution of precipitating issues for suicidal behavior and enable the suicidal child or adolescent to rank stresses and to consider avenues of problem-solving (Rotheram-Borus et al., 1994; Brent et al., 1997; Spirito, 1997).

Interpersonal conflicts are important stresses related to the risk imparted by poor social adjustment of potentially suicidal children and adolescents. Treatment of interpersonal strife may significantly reduce suicidal risk. Recent research into the efficacy of interpersonal psychotherapy of depressed adolescents suggests beneficial effects (Kaslow & Thompson, 1998); it is a treatment that may be modified to address the risk factor issues related to interpersonal loss, conflicts, and need for restitution

often reported by children and adolescents with suicidal tendencies.

A significant class of risk factors for suicide involves family discord, which is characterized by poor communication, disagreements, and lack of cohesive values and goals and of common activities (de Long, 1992; Miller et al., 1992; Wagner, 1997). Suicidal children and adolescents often feel that they are isolated within the family, exhibit problems in independence, and view themselves as expendable to the family, a perception that is a motivating force for self-annihilation (Sabbath, 1969; Pfeffer, 1986; Miller et al., 1992). Family intervention with suicidal children and adolescents is an important method to decrease such problems and to enhance effective family problem-solving and conflict resolution, so that blame is not directed toward the suicidal child or adolescent. Cognitive-behavioral approaches with suicidal children and adolescents and their families aim to reframe their understanding of family problems, alter the family style of maladaptive problem-solving techniques, and encourage positive family interactions (Rotheram-Borus et al., 1994). Time-limited home-based intervention to reduce suicidal ideation in children and adolescents and to improve family functioning has been reported to have limited efficacy for children and adolescents without major depressive disorder (Harrington et al., 1998). Psychoeducational approaches to reduce the extent of expressed anger may be helpful in lowering risk for suicidal behavior in children and adolescents (Fristad et al., 1996).

### Psychopharmacological Treatments

There is a dearth of research on the efficacy of pharmacological treatments for reducing suicidal thoughts or preventing suicide in children and adolescents. Most of the research on pharmacotherapies has been conducted in adults. In depressed adults, SSRIs have been found to reduce suicidal ideation (Letizia et al., 1996; Wernicke et al., 1997) and to reduce the frequency of suicide attempts in nondepressed patients who had previously made at least one suicide attempt (Verkes et al., 1998). In a controlled trial of the experimental neuroleptic drug flupenthixol, researchers noted a significant reduction in suicide-attempt behavior in adults who had made numerous previous attempts (Montgomery & Montgomery, 1982). Similar studies have yet to be conducted on adolescents, although trials of SSRIs in depressed adolescents suggest that these drugs are effective for treating depression and for reducing suicidal ideas also in this age group (Emslie et al., 1997; Ryan & Varma, 1998). Because placebo-controlled, methodologically appropriate studies of tricyclic antidepressants have failed to find a significant effect in depressed children and adolescents (Ryan & Varma, 1998), it is reasonable to regard SSRIs as a first-choice medication in treating depressed suicidal children and adolescents (also see American Academy of Child and Adolescent Psychiatry, 1998). In contrast to tricyclic antidepressants, SSRIs have low lethal potential when taken in overdoses (Ryan & Varma, 1998).

In adults with major depressive disorder, controlled research suggests that lithium reduces suicide risk (Thies-Flechtner et al., 1996), but this has not yet been demonstrated in children and adolescents. Clinicians should be cautious about prescribing medications that may reduce self-control, such as the benzodiazapines, amphetamines, and phenobarbital. These drugs also have a high lethal potential if taken in overdose (Carlsten et al., 1996).

### Intervention After a Suicidal Death of a Relative, Friend, or Acquaintance

The suicidal death of a relative or acquaintance may increase the risk for childhood or adolescent suicidal behavior and other dysphoric states (Brent et al., 1992, 1994; Pfeffer et al., 1994, 1997; Clark & Goebel, 1996). Major depression, post-traumatic stress disorder, and suicidal ideation often occur after the death of an adolescent friend or acquaintance and relative (Brent et al., 1992, 1994, 1996).

The goal of the clinician is to decrease the likelihood that a child or adolescent comes to view the suicidal behavior of the deceased as a coping strategy in dealing with adversity (Brent et al., 1997). Psycho-

educational counseling may reduce the risk for suicidal behavior in these circumstances. Intervention is also needed to decrease the child's or teen's personal sense of guilt, trauma, and social isolation. This treatment can be given in individual meetings, at group sessions with other teens, or in conjunction with parents who need help to support the adaptive capacities of their children and adolescents. School professionals sometimes offer programs of this kind and can be invaluable in identifying grieving friends who may need help.

### Community-Based Suicide Prevention
The principal public health approaches to suicide prevention have been (1) crisis hotlines[8]; (2) restrictions covering access to suicide methods; (3) media counseling to minimize imitative suicide; (4) indirect case-finding by educating potential gate-keepers, teachers, parents, and peers to identify the warning signs of an impending suicide; (5) direct case-finding among high school or college students or among the patients of primary practitioners by screening for conditions that place teens at risk for suicide; and (6) training professionals to improve recognition and treatment of mood disorders. As discussed below, the level of evidence for these strategies varies. There is more support for direct case-finding and improved recognition and treatment of mood disorders than for the other strategies.

### Crisis Hotlines
Although crisis hotlines are available almost everywhere in the United States, research has failed to show that they reduce the incidence of suicide (Bleach & Clairborn, 1974; Apsler & Hodas, 1976; Miller et al., 1984; Shaffer et al., 1990a, 1990b). Possible reasons for this are that actively suicidal individuals (males and individuals with an acute mental disturbance) do not call hotlines because they are acutely disturbed, preoccupied, or intent on not being deflected from their intended course of action (Shaffer et al., 1989). Hotlines are often busy, and there may be a long wait

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[8] Crisis hotlines are only one of the services offered through crisis services, a topic discussed subsequently.

before a call is answered, so that callers disconnect; the advice individuals get on calling a hotline may be stereotyped, inappropriate for an individual's needs, and perceived as unhelpful by the caller. Gender preferences in seeking help result in the large majority of callers being females, whereas males are at greatest risk for suicide. While each of these deficiencies is potentially modifiable, there have been no systematic attempts to do so.

### Method Restriction
Method preference for suicide varies by gender and by nationality. In the United States, the most common method for committing suicide is by firearms, and it has been suggested that reducing firearms availability will reduce the incidence of suicide (Moscicki, 1995). However, a natural experiment in Great Britain suggests this is unlikely. The favored suicide method, self-asphyxiation with coal gas, became impossible after the introduction of natural gas. This resulted in a marked but short-lived decline in the suicide rate. Within a decade, the suicide rate had returned to previous levels, and suicides were being committed by other means (Farberow, 1985). Although reducing access to firearms with gun-security laws reduces accidental deaths from firearms (Cummings et al., 1997), there is no evidence to date that such laws have a significant impact on suicides attributable to firearms.

### Media Counseling
Even though it appears prudent for reporters and editors to minimize coverage of youth suicide in general and attention to individual suicides (O'Carroll & Potter, 1994), there is as yet no evidence that these guidelines, issued by the Centers for Disease Control and Prevention, are effective in reducing the suicide rate.

### Indirect Case-Finding Through Education
Controlled studies have failed to show that classes for high school students about suicide increase students' help-seeking behavior when they are troubled or depressed (Spirito et al., 1988; Shaffer et al., 1991; Vieland et al., 1991). On the other hand, there is evidence that previously suicidal adolescents are upset

by exposure to such classes (Shaffer et al., 1990a, 1990b), even though this does not necessarily lead to a suicide attempt. Such educational programs seem, therefore, to be both an ineffective mode of case-finding and to carry with them an unjustified risk of activating suicidal thoughts.

*Direct Case-Finding*

Judging from the high response rate to surveys about suicidal attempts and ideation (National Center for Health Statistics, 1997), adolescents will provide accurate information about their own suicidal thoughts and/or behaviors if asked directly in a nonthreatening way. A sensible approach to suicide prevention that needs further study, therefore, is to screen systematically 15- to 19-year-olds (the age group at greatest risk) for (1) previous suicide attempts; (2) recent, serious, suicidal preoccupations; (3) depression; or (4) complications of substance or alcohol use. Clearly, screening programs need to go beyond identifying a teen with a high-risk profile. Youth identified in this way should be referred for evaluation and, if necessary, treatment. Contingency arrangements may need to be made to assist uninsured adolescents with help if it is needed (Shaffer & Craft, 1999).

*Aggressive Treatment of Mood Disorders*

Preliminary and as yet unreplicated studies in Sweden (Rihmer et al., 1995) suggest that education of primary medical practitioners to better identify the characteristics of mood disorders and to treat these effectively produced a significant reduction in suicide and suicide-attempt rates. Although the optimal treatment of adolescent depression is not yet as well understood as that of adult depression, this is an option that may prove to be useful.

*Air Force Suicide Prevention Program—A Community Approach*

Combining many of the approaches for adolescents described above, the Air Force Surgeon General developed and implemented a community approach to suicide prevention for older adolescents and young adults on active duty. The program involved education

on suicide risk awareness, reducing barriers to mental health services, and stigma-reducing efforts.[9]

# Other Mental Disorders in Children and Adolescents

## Anxiety Disorders

The combined prevalence of the group of disorders known as anxiety disorders is higher than that of virtually all other mental disorders of childhood and adolescence (Costello et al., 1996). The 1-year prevalence in children ages 9 to 17 is 13 percent (Table 3-1). This section furnishes brief overviews of several anxiety disorders: separation anxiety disorder, generalized anxiety disorder, social phobia, and obsessive-compulsive disorder. Treatments for all but the latter are grouped together below.

### Separation Anxiety Disorder

Although separation anxieties are normal among infants and toddlers, they are not appropriate for older children or adolescents and may represent symptoms of separation anxiety disorder. To reach the diagnostic threshold for this disorder, the anxiety or fear must cause distress or affect social, academic, or job functioning and must last at least 1 month (DSM-IV). Children with separation anxiety may cling to their parent and have difficulty falling asleep by themselves at night. When separated, they may fear that their parent will be involved in an accident or taken ill, or in some other way be "lost" to the child forever. Their need to stay close to their parent or home may make it difficult for them to attend school or camp, stay at friends' houses, or be in a room by themselves. Fear of separation can lead to dizziness, nausea, or palpitations (DSM-IV).

Separation anxiety is often associated with symptoms of depression, such as sadness, withdrawal, apathy, or difficulty in concentrating, and such children often fear that they or a family member might die.

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[9] In 1995, prior to implementation, suicide rates were almost 16 per 100,000; following 3 years of exposure to the program, suicide rates fell to below 2 per 100,000 (Air Force Surgeon General, personal communication, 1999)

Young children experience nightmares or fears at bedtime.

About 4 percent of children and young adolescents suffer from separation anxiety disorder (DSM-IV). Among those who seek treatment, separation anxiety disorder is equally distributed between boys and girls. In survey samples, the disorder is more common in girls (DSM-IV). The disorder may be overdiagnosed in children and teenagers who live in dangerous neighborhoods and have reasonable fears of leaving home.

The remission rate with separation anxiety disorder is high. However, there are periods where the illness is more severe and other times when it remits. Sometimes the condition lasts many years or is a precursor to panic disorder with agoraphobia. Older individuals with separation anxiety disorder may have difficulty moving or getting married and may, in turn, worry about separation from their own children and partner.

The cause of separation anxiety disorder is not known, although some risk factors have been identified. Affected children tend to come from families that are very close-knit. The disorder might develop after a stress such as death or illness in the family or a move. Trauma, especially physical or sexual assault, might bring on the disorder (Goenjian et al., 1995). The disorder sometimes runs in families, but the precise role of genetic and environmental factors has not been established. The etiology of anxiety disorders is more thoroughly discussed in Chapter 4.

### Generalized Anxiety Disorder

Children with generalized anxiety disorder (or overanxious disorder of childhood) worry excessively about all manner of upcoming events and occurrences. They worry unduly about their academic performance or sporting activities, about being on time, or even about natural disasters such as earthquakes. The worry persists even when the child is not being judged and has always performed well in the past. Because of their anxiety, children may be overly conforming, perfectionist, or unsure of themselves. They tend to redo tasks if there are any imperfections. They tend to seek approval and need constant reassurance about

their performance and their anxieties (DSM-IV). The 1-year prevalence rate for all generalized anxiety disorder sufferers of all ages is approximately 3 percent. The lifetime prevalence rate is about 5 percent (DSM-IV).

About half of all adults seeking treatment for this disorder report that it began in childhood or adolescence, but the proportion of children with this disorder who retain the problem into adulthood is unknown. The remission rate is not thought to be as high as that of separation anxiety disorder.

### Social Phobia

Children with social phobia (also called social anxiety disorder) have a persistent fear of being embarrassed in social situations, during a performance, or if they have to speak in class or in public, get into conversation with others, or eat, drink, or write in public. Feelings of anxiety in these situations produce physical reactions: palpitations, tremors, sweating, diarrhea, blushing, muscle tension, etc. Sometimes a full-blown panic attack ensues; sometimes the reaction is much more mild. Adolescents and adults are able to recognize that their fear is unreasonable or excessive, although this recognition does not prevent the fear. Children, however, might not recognize that their reaction is excessive, although they may be afraid that others will notice their anxiety and consider them odd or babyish.

Young children do not articulate their fears, but may cry, have tantrums, freeze, cling, appear extremely timid in strange social settings, shrink from contact with others, stay on the side during social events, and try to stay close to familiar adults. They may fall behind in school, avoid school completely, or avoid social activities among children their age. The avoidance of the fearful situations or worry preceding the feared event may last for weeks and interfere with the individual's daily routine, social life, job, or school. They may find it impossible to speak in social situations or in the presence of unfamiliar people (for review of social phobia, see DSM-IV; Black et al., 1997).

Social phobia is common, the lifetime prevalence ranging from 3 to 13 percent, depending on how great the fear is and on how many different situations induce

the anxiety (DSM-IV; Black et al., 1997). In survey studies, the majority of those with the disorder were found to be female (DSM-IV). Often the illness is lifelong, although it may become less severe or completely remit. Life events may reassure the individual or exacerbate the anxiety and disorder.

### Treatment of Anxiety

Although anxiety disorders are the most common disorder of youth, there is relatively little research on the efficacy of psychotherapy (Kendall et al., 1997). For childhood phobias, contingency management[10] was the only intervention deemed to be *well-established*, according to an evaluation by Ollendick and King (1998), which applied the American Psychological Association Task Force criteria (noted earlier). Several psychotherapies are *probably efficacious* for treating phobias: systematic desensitization[11]; modeling, based on research by Bandura and colleagues, which capitalizes on an observational learning technique (Bandura, 1971; see also Chapter 2); and several cognitive-behavioral therapy (CBT) approaches (Ollendick & King, 1998).

CBT, as pioneered by Kendall and colleagues (Kendall et al., 1992; Kendall, 1994), is deemed by the American Psychological Association Task Force as *probably efficacious*. It has four major components: recognizing anxious feelings, clarifying cognitions in anxiety-provoking situations,[12] developing a plan for coping, and evaluating the success of coping strategies. A more recent study in Australia added a parent component to CBT, which enhanced reduction in post-treatment anxiety disorder significantly compared with CBT alone (Barrett et al., 1996). However, none of the interventions identified above as *well-established* or *probably efficacious* has, for the most part, been tested in real-world settings.

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[10] Contingency management attempts to alter behavior by manipulating its consequences through the behavioral principles of shaping, positive reinforcement, and extinction.

[11] A technique that trains people to "unlearn" fears by presentation of fearful stimuli along with nonfearful stimuli.

[12] This refers to understanding how cognitions are being distorted.

In addition, psychodynamic treatment to address underlying fears and worries can be helpful, and behavior therapy may reduce the child's fear of separation or of going to school; however, the experimental support for these approaches is limited.

Preliminary research suggests that selective serotonin reuptake inhibitors may provide effective treatment of separation anxiety disorder and other anxiety disorders of childhood and adolescence. Two large-scale randomized controlled trials are currently being undertaken (Greenhill, 1998a, 1998b). Neither tricyclic antidepressants nor benzodiazepines have been shown to be more effective than placebo in children (Klein et al., 1992; Bernstein et al., 1998).

### Obsessive-Compulsive Disorder

Obsessive-compulsive disorder (OCD), which is classified in DSM-IV as an anxiety disorder, is characterized by recurrent, time-consuming obsessive or compulsive behaviors that cause distress and/or impairment. The obsessions may be repetitive intrusive images, thoughts, or impulses. Often the compulsive behaviors, such as hand-washing or cleaning rituals, are an attempt to displace the obsessive thoughts (DSM-IV). Estimates of prevalence range from 0.2 to 0.8 percent in children, and up to 2% of adolescents (Flament et al., 1998).

There is a strong familial component to OCD, and there is evidence from twin studies of both genetic susceptibility and environmental influences. If one twin has OCD, the other twin is more likely to have OCD if the children are identical twins rather than fraternal twin pairs. OCD is increased among first-degree relatives of children with OCD, particularly among fathers (Lenane et al., 1990). It does not appear that the child is simply imitating the relative's behavior, because children who develop OCD tend to have symptoms different from those of relatives with the disease (Leonard et al., 1997). Many adults with either childhood- or adolescent-onset of OCD show evidence of abnormalities in a neural network known as the orbitofrontal-striatal area (Rauch & Savage, 1997; Grachev et al., 1998).

Recent research suggests that some children with OCD develop the condition after experiencing one type of streptococcal infection (Swedo et al., 1995). This condition is referred to by the acronym PANDAS, which stands for Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal infections. Its hallmark is a sudden and abrupt exacerbation of OCD symptoms after a strep infection. This form of OCD occurs when the immune system generates antibodies to the streptococcal bacteria, and the antibodies cross-react with the basal ganglia[13] of a susceptible child, provoking OCD (Garvey et al., 1998). In other words, the cause of this form of OCD appears to be antibodies directed against the infection mistakenly attacking a region of the brain and setting off an inflammatory reaction.

The selective serotonin reuptake inhibitors appear effective in ameliorating the symptoms of OCD in children, although more clinical trials have been done with adults than with children. Several randomized, controlled trials revealed SSRIs to be effective in treating children and adolescents with OCD (Flament et al., 1985; DeVeaugh-Geiss et al., 1992; Riddle et al., 1992, 1998). The appropriate duration of treatment is still being studied. Side effects are not inconsequential: dry mouth, somnolence, dizziness, fatigue, tremors, and constipation occur at fairly high rates. Cognitive-behavioral treatments also have been used to treat OCD (March et al., 1997), but the evidence is not yet conclusive.

## Autism

Autism, the most common of the pervasive developmental disorders (with a prevalence of 10 to 12 children per 10,000 [Bryson & Smith, 1998]), is characterized by severely compromised ability to engage in, and by a lack of interest in, social interactions. It has roots in both structural brain abnormalities and genetic predispositions, according to family studies and studies of brain anatomy. The search for genes that predispose to autism is considered an

extremely high research priority for the National Institute of Mental Health (NIMH, 1998). Although the reported association between autism and obstetrical hazard may be due to genetic factors (Bailey et al., 1995), there is evidence that several different causes of toxic or infectious damage to the central nervous system during early development also may contribute to autism. Autism has been reported in children with fetal alcohol syndrome (Aronson et al., 1997), in children who were infected with rubella during pregnancy (Chess et al., 1978), and in children whose mothers took a variety of medications that are known to damage the fetus (Williams & Hersh, 1997).

Cognitive deficits in social perception likely result from abnormalities in neural circuitry. Children with autism have been studied with several imaging techniques, but no strongly consistent findings have emerged, although abnormalities in the cerebellum and limbic system (Rapin & Katzman, 1998) and larger brains (Piven, 1997) have been reported. In one small study (Zilbovicius et al., 1995), evidence of delayed maturation of the frontal cortex was found. The evidence for genetic influences include a much greater concordance in identical than in fraternal twins (Cook, 1998).

### Treatment

Because autism is a severe, chronic developmental disorder, which results in significant lifelong disability, the goal of treatment is to promote the child's social and language development and minimize behaviors that interfere with the child's functioning and learning. Intensive, sustained special education programs and behavior therapy early in life can increase the ability of the child with autism to acquire language and ability to learn. Special education programs in highly structured environments appear to help the child acquire self-care, social, and job skills. Only in the past decade have studies shown positive outcomes for very young children with autism. Given the severity of the impairment, high intensity of service needs, and costs (both human and financial), there has been an ongoing search for effective treatment.

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[13] Basal ganglia are groups of neurons responsible for motor and impulse control, attention, and regulation of mood and behavior.

Thirty years of research demonstrated the efficacy of applied behavioral methods in reducing inappropriate behavior and in increasing communication, learning, and appropriate social behavior. A well-designed study of a psychosocial intervention was carried out by Lovaas and colleagues (Lovaas, 1987; McEachin et al., 1993). Nineteen children with autism were treated intensively with behavior therapy for 2 years and compared with two control groups. Followup of the experimental group in first grade, in late childhood, and in adolescence found that nearly half the experimental group but almost none of the children in the matched control group were able to participate in regular schooling. Up to this point, a number of other research groups have provided at least a partial replication of the Lovaas model (see Rogers, 1998).

Several uncontrolled studies of comprehensive center-based programs have been conducted, focusing on language development and other developmental skills. A comprehensive model, Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH), demonstrated short-term gains for preschoolers with autism who received daily TEACCH home-teaching sessions, compared with a matched control group (Ozonoff & Cathcart, 1998). A review of other comprehensive, center-based programs has been conducted, focusing on elements considered critical to school-based programs, including minimum hours of service and necessary curricular components (Dawson & Osterling, 1997).

The antipsychotic drug, haloperidol, has been shown to be superior to placebo in the treatment of autism (Perry et al., 1989; Locascio et al., 1991), although a significant number of children develop dyskinesias[14] as a side effect (Campbell et al., 1997). Two of the SSRIs, clomipramine (Gordon et al., 1993) and fluoxetine (McDougle et al., 1996), have been tested, with positive results, except in young autistic children, in whom clomipramine was not found to be therapeutic, and who experienced untoward side effects (Sanchez et al., 1996). Of note, preliminary studies of

some of the newer antipsychotic drugs suggest that they may have fewer side effects than conventional antipsychotics such as haloperidol, but controlled studies are needed before firm conclusions can be drawn about any possible advantages in safety and efficacy over traditional agents.

## Disruptive Disorders

Disruptive disorders, such as oppositional defiant disorder and conduct disorder, are characterized by antisocial behavior and, as such, seem to be a collection of behaviors rather than a coherent pattern of mental dysfunction. These behaviors are also frequently found in children who suffer from attention-deficit/hyperactivity disorder, another disruptive disorder, which is discussed separately in this chapter. Children who develop the more serious conduct disorders often show signs of these disorders at an earlier age. Although it is common for a very young children to snatch something they want from another child, this kind of behavior may herald a more generally aggressive behavior and be the first sign of an emerging oppositional defiant or conduct disorder if it occurs by the ages of 4 or 5 and later. However, not every oppositional defiant child develops conduct disorder, and the difficult behaviors associated with these conditions often remit.

*Oppositional defiant disorder* (ODD) is diagnosed when a child displays a persistent or consistent pattern of defiance, disobedience, and hostility toward various authority figures including parents, teachers, and other adults. ODD is characterized by such problem behaviors as persistent fighting and arguing, being touchy or easily annoyed, and deliberately annoying or being spiteful or vindictive to other people. Children with ODD may repeatedly lose their temper, argue with adults, deliberately refuse to comply with requests or rules of adults, blame others for their own mistakes, and be repeatedly angry and resentful. Stubbornness and testing of limits are common. These behaviors cause significant difficulties with family and friends and at school or work (DSM-IV; Weiner, 1997). Oppositional defiant disorder is sometimes a precursor of conduct disorder (DSM-IV).

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[14] Dyskinesia is an impairment of voluntary movement, such that it becomes fragmentary or incomplete.

In different studies, estimates of the prevalence of ODD have ranged from 1 to 6 percent, depending on the population sample and the way the disorder was evaluated, but not depending on diagnostic criteria. Rates are lower when impairment criteria are more strict and when information is obtained from teachers and parents rather than from the children alone (Shaffer et al., 1996a). Before puberty, the condition is more common in boys, but after puberty the rates in both genders are equal.

In preschool boys, high reactivity, difficulty being soothed, and high motor activity may indicate risk for the disorder. Marital discord, disrupted child care with a succession of different caregivers, and inconsistent, unsupervised child-rearing may contribute to the condition.

Children or adolescents with *conduct disorder* behave aggressively by fighting, bullying, intimidating, physically assaulting, sexually coercing, and/or being cruel to people or animals. Vandalism with deliberate destruction of property, for example, setting fires or smashing windows, is common, as are theft; truancy; early tobacco, alcohol, and substance use and abuse; and precocious sexual activity. Girls with a conduct disorder are prone to running away from home and may become involved in prostitution. The behavior interferes with performance at school or work, so that individuals with this disorder rarely perform at the level predicted by their IQ or age. Their relationships with peers and adults are often poor. They have higher injury rates and are prone to school expulsion and problems with the law. Sexually transmitted diseases are common. If they have been removed from home, they may have difficulty staying in an adoptive or foster family or group home, and this may further complicate their development. Rates of depression, suicidal thoughts, suicide attempts, and suicide itself are all higher in children diagnosed with a conduct disorder (Shaffer et al., 1996b).

The prevalence of conduct disorder in 9- to 17-year-olds in the community varies from 1 to 4 percent, depending on how the disorder is defined (Shaffer et al., 1996a). Children with an early onset of the disorder, i.e., onset before age 10, are predominantly male. The disorder appears to be more common in cities than in rural areas (DSM-IV). Those with early onset have a worse prognosis and are at higher risk for adult antisocial personality disorder (DSM-IV; Rutter & Giller, 1984; Hendren & Mullen, 1997). Between a quarter and a half of highly antisocial children become antisocial adults.

The etiology of conduct disorder is not fully known. Studies of twins and adopted children suggest that conduct disorder has both biological (including genetic) and psychosocial components (Hendren & Mullen, 1997). Social risk factors for conduct disorder include early maternal rejection, separation from parents with no adequate alternative caregiver available, early institutionalization, family neglect, abuse or violence, parents' psychiatric illness, parental marital discord, large family size, crowding, and poverty (Loeber & Stouthamer-Loeber, 1986). These factors are thought to lead to a lack of attachment to the parents or to the family unit and eventually to lack of regard for the rules and rewards of society (Sampson & Laub, 1993). Physical risk factors for conduct disorder include neurological damage caused by birth complications or low birthweight, attention-deficit/hyperactivity disorder, fearlessness and stimulation-seeking behavior, learning impairments, autonomic underarousal, and insensitivity to physical pain and punishment. A child with both social deprivation and any of these neurological conditions is most susceptible to conduct disorder (Raine et al., 1998).

Since many of the risk factors for conduct disorder emerge in the first years of life, intervention must begin very early. Recently, screening instruments have been developed to enable earlier identification of risk factors and signs of conduct disorder in young children (Feil et al., 1995). Studies have shown a correlation between the behavior and attributes of 3-year-olds and the aggressive behavior of these children at ages 11 to 13 (Raine et al., 1998). Measurements of aggressive behaviors have been shown to be stable over time (Sampson & Laub, 1993). Training parents of high-risk children how to deal with the children's demands may help. Parents may need to be taught to reinforce

appropriate behaviors and not harshly punish transgressing ones, and encouraged to find ways to increase the strength of the emotional ties between parent and child. Working with high-risk children on social interaction and providing academic help to reduce rates of school failure can help prevent some of the negative educational consequences of conduct disorder (Johnson & Breckenridge, 1982).

## Treatment

Several psychosocial interventions can effectively reduce antisocial behavior in disruptive disorders. A recent review of psychosocial treatments for children and adolescents identified 82 studies conducted between 1966 and 1995 involving 5,272 youth (Brestan & Eyberg, 1998). The criterion for inclusion was that the child was in treatment for conduct problem behavior, based on displaying a symptom of conduct disorder or oppositional defiant disorder, rather than on a DSM diagnosis of either, although children did meet DSM criteria for one of these conditions in about one-third of the studies.

By applying criteria established by the American Psychological Association Task Force (see earlier) to the 82 studies, two treatments met criteria for *well-established* treatment and 10 for *probably efficacious* treatment. Two *well-established* treatments, both directed at training parents, succeeded in reducing problem behaviors. The two treatments were a parent training program based on the manual *Living With Children* (Bernal et al., 1980) and a videotape modeling parent training (Spaccarelli et al., 1992). The first teaches parents to reward desirable behaviors and ignore or punish deviant behaviors, based on principles of operant conditioning. The second provides a series of videotapes covering parent-training lessons, after which a therapist leads a group discussion of the videotape lessons. The identification of 12 treatments as *well-established* or *probably efficacious* is very encouraging because of the potential to intervene effectively with youth at high risk of poor outcomes. A new and promising approach for the treatment of conduct disorder is multisystemic therapy, an intensive

home- and family-focused treatment that is described under Home-Based Services.

Despite strong enthusiasm for improving care for conduct-disordered youth, there are important groups of children, specifically girls and ethnic minority populations, who were not sufficiently represented in these studies to ensure that the identified treatments work for them. Other issues raised by Brestan and Eyberg (1998) are cost-effectiveness, the sufficiency of a given intervention, effectiveness over time, and the prevention of relapse.

No drugs have been demonstrated to be consistently effective in treating 'conduct disorder, although four drugs have been tested. Lithium and methylphenidate have been found (one double-blind placebo trial each) to reduce aggressiveness effectively in children with conduct disorder (Campbell et al., 1995; Klein et al., 1997b), but in two subsequent studies with the same design, the positive findings for lithium could not be reproduced (Rifkin et al., 1989; Klein, 1991). In one of the latter studies, methylphenidate was superior to lithium and placebo. A third drug, carbamazepine, was found in a pilot study to be effective, but multiple side effects were also reported (Kafantaris et al., 1992). The fourth drug, clonidine, was explored in an open trial, in which 15 of 17 patients showed a significant decrease in aggressive behavior, but there were also significant side effects that would require monitoring of cardiovascular and blood pressure parameters (Kemph et al., 1993).

## Substance Use Disorders in Adolescents

Since the early 1990s there has been a "sharp resurgence" in the misuse of alcohol and other drugs by adolescents (Johnston et al., 1996). A recent review, focusing particularly on substance abuse and dependence, synthesizes research findings of the past decade (Weinberg et al., 1998). The authors review epidemiology, course, etiology, treatment, and prevention and discuss comorbidity with other mental disorders in adolescents. All of these issues are important to public health, but none is more relevant to this report than the co-occurrence of alcohol and other

substance use disorders with other mental disorders in adolescents.

According to the National Comorbidity Study, 41 to 65 percent of individuals with a lifetime substance abuse disorder also have a lifetime history of at least one mental disorder, and about 51 percent of those with one or more lifetime mental disorders also have a lifetime history of at least one substance use disorder (Kessler et al., 1996). The rates are highest in the 15- to 24-year-old age group (Kessler et al., 1994). The cross-sectional data on association do not permit any conclusion about causality or clinical prediction (Kessler et al., 1996), but an appealing theory suggests that a subgroup of the population abuses drugs in an effort to self-medicate for the co-occurring mental disorder. Little is actually known about the role of mental disorders in increasing the risk of children and adolescents for misuse of alcohol and other drugs. Stress appears to play a role in both the process of addiction and the development of many of the comorbid conditions.

The review by Weinberg and colleagues (1998) provides more detail on epidemiology and assessment of alcohol and other drug use in adolescents and describes several effective treatment approaches for these problems. A meta-analysis and literature review (Stanton & Shadish, 1997) concluded that family-oriented therapies were superior to other treatment approaches and enhanced the effectiveness of other treatments. Multisystemic family therapy, discussed elsewhere in this chapter, is effective in reducing alcohol and other substance use and other severe behavioral problems among adolescents (Pickrel & Henggeler, 1996).

## Eating Disorders

Eating disorders are serious, sometimes life-threatening, conditions that tend to be chronic (Herzog et al., 1999). They usually arise in adolescence and disproportionately affect females. About 3 percent of young women have one of the three main eating disorders: anorexia nervosa, bulimia nervosa, or binge-eating disorder (Becker et al., 1999). Binge-eating disorder is a newly recognized condition featuring episodic uncontrolled consumption, without compensatory activities, such as vomiting or laxative abuse, to avert weight gain (Devlin, 1996). Bulimia, in contrast, is marked by both binge eating and by compensatory activities. Anorexia nervosa is characterized by low body weight (< 85 percent of expected weight), intense fear of weight gain, and an inaccurate perception of body weight or shape (DSM-IV). Its mean age of onset is 17 years (DSM-IV).

The causes of eating disorders are not known with precision but are thought to be a combination of genetic, neurochemical, psychodevelopmental, and sociocultural factors (Becker et al., 1999; Kaye et al., 1999). Comorbid mental disorders are exceedingly common, but interrelationships are poorly understood. Comorbid disorders include affective disorders (especially depression), anxiety disorders, substance abuse, and personality disorders (Herzog et al., 1996). Anorexia nervosa has the most severe consequence, with a mortality rate of 0.56 percent per year (or 5.6 percent per decade) (Sullivan, 1995), a rate higher than that of almost all other mental disorders (Herzog et al., 1996). Mortality is from starvation, suicide, or electrolyte imbalance (DSM-IV). The mortality rate from anorexia nervosa is 12 times higher than that for other young women in the population (Sullivan, 1995).

Treatment of eating disorders entails psychotherapy and pharmacotherapy, either alone or in combination. Treatment of comorbid mental disorders also is important, as is treatment of medical complications. There are some controlled studies of the efficacy of specific treatments for *adults* with bulimia and binge-eating disorder (Devlin, 1996), but fewer for anorexia nervosa (Kaye et al., 1999). Controlled studies in adolescents are rare for any eating disorder (Steiner and Lock, 1998). Pharmacological studies in young *adult* women found conflicting evidence of benefit from antidepressants for anorexia and some reduction in the frequency of binge eating and purging with tricyclic antidepressants, monoamine oxidase inhibitors, and SSRIs (see Jimerson et al., 1993; Jacobi et al., 1997). Studies mostly of adult women find cognitive-behavioral therapy and interpersonal therapy to be effective for bulimia and binge-eating disorder

(Fairburn et al., 1993; Devlin, 1996; Becker et al., 1999). Clearly, more research is warranted for the treatment of eating disorders, especially because a sizable proportion of those with eating disorders have limited response to treatment (Kaye et al., 1999).

# Services Interventions

## Treatment Interventions

This section examines the effectiveness of such treatment interventions as outpatient, partial hospitalization/day, residential, inpatient treatments, and medication. Much of the research on their effectiveness deals with children's outcomes largely independent of diagnosis. As noted earlier in this chapter (see Treatment Strategies), practitioners and researchers previously shied away from diagnosis because of the inherent difficulty of making a diagnosis, concerns about labeling children, and the limited usefulness of DSM classifications for children. Each intervention was developed to treat a *host* of mental health conditions in children and adolescents. Each also was delivered in a wide range of settings. Over time, the combination of interventions and settings, with the exception of medication, became conceptualized as "treatments," which stimulated research on their effectiveness (Goldman, 1998). They are not, however, treatments in the conventional sense of the term because they are less specific than other treatments with respect to indications, intensity (i.e., "dose"), and elements of the intervention. There is little research describing treatment in actual clinical settings.

### *Outpatient Treatment*

The term "outpatient treatment" covers a large variety of therapeutic approaches, with most falling into the broad theoretical categories of the psychodynamic, interpersonal, and behavioral psychotherapy. Outpatient psychotherapy is the most common form of treatment for children and adolescents, utilized annually by an estimated 5 to 10 percent of children and their families in the United States (Burns et al., 1998). It is also the most extensively studied intervention and, with over 300 studies, has the strongest research base (Weisz et al., 1998). Outpatient therapy is offered to individuals, groups, or families, usually in a clinic or private office. The duration of treatment varies from 6 to 12 weekly sessions to a year or longer. Newer outpatient interventions (e.g., case management, home-based therapy) that were developed more recently for youth with severe disorders are provided with greater frequency (i.e., daily) in the home, school, or community. Those interventions are reviewed later in this chapter.

The strongest support for the effectiveness of outpatient treatment comes from a series of meta-analyses. Meta-analyses are an important type of research methodology, described in Chapter 1, that enable one to combine research findings from separate studies. Nine meta-analyses, published between 1985 and 1995, probed the effectiveness of research on individual, group, and family therapy for children and adolescents (Casey & Berman, 1985; Hazelrigg et al., 1987; Weisz et al., 1987; Kazdin et al., 1990; Baer & Nietzel, 1991; Grossman & Hughes 1992; Shadish et al., 1993; Weisz & Weiss, 1993; Weisz et al., 1995). Although these meta-analyses vary in time period, age groups, and meta-analytic approach, they were largely restricted to studies of treatment given in a research clinical setting, and their findings are relatively consistent. The major findings indicated that the improvements with outpatient therapy are greater than those achieved without treatment; the treatment is highly effective, as was found in meta-analyses of adults (Brown, 1987); and the effects of treatment are similar, whether applied to problems such as anxiety, depression, or withdrawal (internalizing problems) or to hyperactivity and aggression (externalizing problems) (Kazdin, 1996).

Given strong evidence of efficacy for outpatient treatment, the question of applicability to real-world settings has been examined. A meta-analysis was performed on studies of the effectiveness of various types of outpatient treatment, regardless of whether their efficacy had been established through research (Weisz et al., 1995). The researchers were able to identify only nine studies of treated children in nonresearch clinical settings where therapy was a

regular service of the clinic and was carried out by practicing clinicians. Those nine studies demonstrated little or no effect. Clearly, real-world therapy was found to be less effective than that provided through a research protocol. A variety of factors may account for the gap, including less attention in real-world settings to careful matching of patients with treatments, less adherence to a treatment protocol, and less followup care.

## Partial Hospitalization/Day Treatment

Partial hospitalization, also called day treatment and partial care, has been a growing treatment modality for youth with mental disorders. Research on partial hospitalization as an alternative to inpatient treatment generally finds benefit from a structured daily environment that allows youth to return home at night to be with their family and peers.

Partial hospitalization is a specialized and intensive form of treatment that is less restrictive than inpatient care but is more intensive than the usual types of outpatient care (i.e., individual, family, or group treatment). The most frequently used type of partial hospitalization is an integrated curriculum combining education, counseling, and family interventions. The setting, be it a hospital, school, or clinic, may be tied to the theoretical orientation of the treatment, which ranges from psychoanalytic to behavioral. Partial hospitalization has also been used as a transitional service after either psychiatric hospitalization or residential treatment, at the point when the child no longer needs 24-hour care but is not ready to be integrated into the school system. It also is used to prevent institutional placement.

Overall, the research literature points to positive gains from adolescent use of day treatment, but most of the studies are uncontrolled. Gains relate to academic and behavioral improvement; reduction in, or delay of, hospital and residential placement; and a return to regular school for about 75 percent of patients (Baenen et al., 1986; Gabel & Finn, 1986). Day treatment programs are not being used as frequently as they might be because third-party payers are reluctant to support this form of treatment. They claim that the modality is

ambiguous, that it induces demand among those who would not otherwise seek treatment, and that its length, treatment outcomes, and costs are unpredictable (Kiser et al., 1986). Research is needed to address these issues.

To date, the only controlled study of partial hospitalization compared outcomes for young children (ages 5 to 12) with disruptive behavior disorders who received intensive day treatment with children who received traditional outpatient treatment services (in fact, a waiting list control) (Grizenko et al., 1993). The results at 6 months favored day treatment in reducing behavior problems, decreasing symptoms, and improving family functioning.

Findings from uncontrolled studies of partial hospitalization are informative, although not conclusive. Based on approximately 20 studies, multiple benefits have been reported even over the long term (see reviews by Kutash & Rivera, 1996; Grizenko, 1997). In general, child behavior and family functioning improve following partial hospitalization. Findings for improved academic achievement are mixed and possibly suggest that implementation of school-based models should be considered. About three-fourths of youth are reintegrated into regular school, often with the help of special education or other school- or community-based services. Several uncontrolled studies found that day treatment could prevent youth from entering other costly placements (particularly inpatient and residential treatment centers), which suggests that partial hospitalization may reduce overall costs of treatment (Kutash & Rivera, 1996). Finally, family participation during and following day treatment is essential to obtaining and maintaining results (Kutash & Rivera, 1996).

## Residential Treatment Centers

Residential treatment centers are the second most restrictive form of care (next to inpatient hospitalization) for children with severe mental disorders. Although used by a relatively small percentage (8 percent) of treated children, nearly one-fourth of the national outlay on child mental health is spent on care in these settings (Burns et al., 1998).

However, there is only weak evidence for their effectiveness.

A residential treatment center (RTC) is a licensed 24-hour facility (although not licensed as a hospital), which offers mental health treatment. The types of treatment vary widely; the major categories are psychoanalytic, psychoeducational, behavioral management, group therapies, medication management, and peer-cultural. Settings range from structured ones, resembling psychiatric hospitals, to those that are more like group homes or halfway houses. While formerly for long-term treatment (e.g., a year or more), RTCs under managed care are now serving more seriously disturbed youth for as briefly as 1 month for intensive evaluation and stabilization.

Concerns about residential care primarily relate to criteria for admission; inconsistency of community-based treatment established in the 1980s; the costliness of such services (Friedman & Street, 1985); the risks of treatment, including failure to learn behavior needed in the community; the possibility of trauma associated with the separation from the family; difficulty reentering the family or even abandonment by the family; victimization by RTC staff; and learning of antisocial or bizarre behavior from intensive exposure to other disturbed children (Barker, 1998). These concerns are discussed below.

In the past, admission to an RTC has been justified on the basis of community protection, child protection, and benefits of residential treatment per se (Barker, 1982). However, none of these justifications have stood up to research scrutiny. In particular, youth who display seriously violent and aggressive behavior do not appear to improve in such settings, according to limited evidence (Joshi & Rosenberg, 1997). One possible reason is that association with delinquent or deviant peers is a major risk factor for later behavior problems (Loeber & Farrington, 1998). Moreover, community interventions that target change in peer associations have been found to be highly effective at breaking contact with violent peers and reducing aggressive behaviors (Henggeler et al., 1998). Although removal from the community for a time may be necessary for some, there is evidence that highly targeted behavioral

interventions provided on an outpatient basis can ameliorate such behaviors (Brestan & Eyberg, 1998). For children in the second category (i.e., those needing protection from themselves because of suicide attempts, severe substance use, abuse, or persistent running away), it is possible that a brief hospitalization for an acute crisis or intensive community-based services may be more appropriate than an RTC. An intensive long-term program such as an RTC with a high staff to child ratio may be of benefit to some children, especially when sufficient supportive services are not available in their communities. In short, there is a compelling need to clarify criteria for admission to RTCs (Wells, 1991). Previous criteria have been replaced and strengthened (i.e., with an emphasis on resources needed after discharge) by the National Association of Psychiatric Treatment Centers for Children (1990).

The evidence for outcomes of residential treatment comes from research published largely in the 1970s and 1980s and, with three exceptions, consists of uncontrolled studies (see Curry, 1991).

Of the three controlled studies of RTCs, the first evaluated a program called Project Re-Education (Re-Ed). Project Re-Ed, a model of residential treatment developed in the 1960s, focuses on training teacher-counselors, who are backed up by consultant mental health specialists. Project Re-Ed schools are located within communities, facilitating therapeutic work with the family and allowing the child to go home on weekends. Camping also is an important component of the program, inspired by the Outward Bound Schools in England. The first published study of Project Re-Ed compared outcomes for adolescent males in Project Re-Ed with untreated disturbed adolescents and with nondisturbed adolescents. Treated adolescents improved in self-esteem, control of impulsiveness, and internal control compared with untreated adolescents, according to ratings by Project Re-Ed staff and by families (Weinstein, 1974). A 1988 followup study of Project Re-Ed found that when adjustment outcomes were maintained at 6 months after discharge from Project Re-Ed, those outcomes were predicted more by community factors at admission (e.g., condition of the family and school, supportiveness of the local

community) than by client factors (e.g., diagnosis, school achievement, age, IQ). This suggested that interventions in the child's community might be as effective as placement in the treatment setting (Lewis, 1988).

The only other controlled study compared an RTC with therapeutic foster care through the Parent Therapist Program. Both client groups shared comparable backgrounds and made similar progress in their respective treatment program. However, the residential treatment cost twice as much as therapeutic foster care (Rubenstein et al., 1978).

Despite strong caveats about the quality, sophistication, and import of uncontrolled studies, several consistent findings have emerged. For most children (60 to 80 percent), gains are reported in areas such as clinical status, academic skills, and peer relationships. Whether gains are sustained following treatment appears to depend on the supportiveness of the child's post-discharge environment (Wells, 1991). Several studies of single institutions report maintenance of benefits from 1 to 5 years later (Blackman et al., 1991; Joshi & Rosenberg, 1997). In contrast, a large longitudinal six-state study of children in publicly funded RTCs found at the 7-year followup that 75 percent of youth treated at an RTC had been either readmitted to a mental health facility (about 45 percent) or incarcerated in a correctional setting (about 30 percent) (Greenbaum et al., 1998).

In summary, youth who are placed in RTCs clearly constitute a difficult population to treat effectively. The outcomes of not providing residential care are unknown. Transferring gains from a residential setting back into the community may be difficult without clear coordination between RTC staff and community services, particularly schools, medical care, or community clinics. Typically, this type of coordination or aftercare service is not available upon discharge. The research on RTCs is not very enlightening about the potential to substitute RTC care for other levels of care, as this requires comparisons with other interventions. Given the limitations of current research, it is premature to endorse the effectiveness of residential treatment for adolescents. Moreover, research is needed

to identify those groups of children and adolescents for whom the benefits of residential care outweigh the potential risks.

### Inpatient Treatment

Inpatient hospitalization is the most restrictive type of care in the continuum of mental health services for children and adolescents. Questions about excessive and inappropriate use of hospitals were raised in the early 1980s (Knitzer, 1982) and clearly documented thereafter in rising admission rates from the 1980s into the mid-1990s, without evidence of increased social or clinical need for such treatment (Weller et al., 1995). Inpatient care consumes about half of child mental health resources, based on the latest estimate available (Burns, 1991), but it is the clinical intervention with the weakest research support. Nevertheless, because some children with severe disorders *do* require a highly restrictive treatment environment, hospitals are expected to remain an integral component of mental health care (Singh et al., 1994). More concerted attention to the risks and benefits of hospital use is critical, however, along with development of community-based alternative services.

Research on inpatient treatment mostly consists of uncontrolled studies (Curry, 1991). Factors that are likely to predict benefit have been identified from such studies. Beneficial factors were found to include higher child intelligence; the quality of family functioning and family involvement in treatment; specific characteristics of treatment (e.g., completion of treatment program and planned discharge); and the use of aftercare services. Neither age nor gender affected prognosis after hospitalization. The prognosis was poor for several clinical characteristics, including children with a psychotic diagnosis and antisocial features with conduct disorder (Kutash & Rivera, 1996).

Only three controlled studies evaluated the effectiveness of inpatient treatment: one that randomized antisocial children to specific interventions on an inpatient unit (Kazdin et al., 1987a, 1987b) and two older clinical trials (Flomenhaft, 1974; Winsberg et al., 1980). All three studies demonstrated that community care was at least as effective as inpatient treatment.

More recently there have been preliminary favorable findings from a randomized trial of inpatient treatment versus multisystemic therapy (MST), an intensive home-based intervention. For example, MST was more effective than psychiatric hospitalization in reducing antisocial behavior, improving family structure and cohesion, improving social relationships, and keeping children in school and out of institutions (after the initial period when the control group was in the hospital). Hospitalized youth reported improved self-esteem, and youth in both treatment conditions showed comparable decreases in emotional distress (Henggeler et al., 1998). A great deal more research is needed on inpatient hospitalization, as it is by far the costliest and most restrictive form of care. Recent changes in health care management have resulted in short lengths of stay for children and adolescents. Preliminary results from the study of MST indicate that intensive home-based services may be a viable alternative to hospitalization. However, even when such services are available, there may be a need for brief 24-hour stabilization units for handling crises (see Crisis Services).

## Newer Community-Based Interventions

Since the 1980s, the field of children's mental health has witnessed a shift from institutional to community-based interventions. The forces behind this transformation are presented in a subsequent section, Service Delivery. This section attempts to answer the question of whether community-based interventions are effective. It covers a range of comprehensive community-based interventions, including case management, home-based services, therapeutic foster care, therapeutic group homes, and crisis services. Although the evidence for the benefits of some of these services is uneven at best, even uncontrolled studies offer a starting point for studying the effectiveness and feasibility of their implementation. Many of the evaluations to date offer a first glimpse into the benefits of these services and the extent to which they may be valuable for further examination. Of these interventions, the most convincing evidence of effectiveness

is for home-based services and therapeutic foster care, as discussed below.

There is a special emphasis throughout this section on "children with serious emotional disturbances," as many of these community-based services are targeted to this population of the most serious severely affected children. The term serious emotional disturbance refers to a diagnosed mental health problem that substantially disrupts a child's ability to function socially, academically, and emotionally. It is not a formal DSM-IV diagnosis but rather a term that has been used both within states and at the Federal level to identify a population of children with significant functional impairment due to mental, emotional, and behavioral problems who have a high need for services. The official definition of children with serious emotional disturbance adopted by the Substance Abuse and Mental Health Services Administration is "persons from birth up to age 18 who currently or at any time during the past year had a diagnosable mental, behavioral, or emotional disorder of sufficient duration to meet diagnostic criteria specified within the DSM-III-R, and that resulted in functional impairment which substantially interferes with or limits the child's role or functioning in family, school, or community activities" (SAMHSA, 1993, p. 29425).[15] The term is used in a variety of Federal statutes in reference to children fitting that description and does not signify any particular diagnosis per se; rather, it is a legal term that triggers a host of mandated services to meet the needs of these children (see Service Delivery section).

### Case Management

Case management is an important and widespread component of mental health services, especially for children with serious emotional disturbances. The main purpose of case management is to coordinate the provision of services for individual children and their families who require services from multiple service providers. Case managers take on roles ranging from brokers of services to providers of clinical services.

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[15] This definition is also used with newer diagnostic systems, such as DSM-IV.

There is a considerable amount of variation in models of case management. In one important model, called "wraparound," case managers involve families in a participatory process of developing an individualized plan focusing on individual and family strengths in multiple life domains. Research on wraparound is still in its early stages (Burns & Goldman, 1999).

There have been controlled studies of three programs that used case managers who work individually rather than as part of an interdisciplinary team (discussed later). In one study of the Partner's Project in Oregon, case management was compared with "usual services," which did not include case management (Gratton et al., 1995). The authors found at 1-year followup that children in the Partner's Project scored significantly higher on measures of social competence and had received more individualized, comprehensive services, and a greater degree of service coordination.

The second study compared the outcomes of intensive case management and regular case management for mentally ill homeless children in Seattle (Cauce et al., 1994). The case managers in the intensive condition had lower caseloads, were required to spend more hours supervising the youth, had flexible funds (for clothing, transportation, etc.) at their disposal, spent more hours in consultation with psychologists, and were of higher educational status. After 1 year, the study found that both groups showed substantial yet similar improvement in mental health and social adjustment.

A model known as Children and Youth Intensive Case Management (CYICM) was evaluated in two controlled studies. The program has been described as an Expanded Broker Model, which means that the case manager, in addition to brokering services, is responsible for assessment, planning, linking, and advocating on behalf of the youth and family. Case managers, with caseloads of 10 children, are given $2,000 of flexible funds per child each year to purchase treatment and ancillary services (e.g., transportation and educational aids). In the first study, the authors found that children in the program spent significantly more days in the community between episodes of psychiatric hospitalization and were hospitalized for fewer days than before enrollment (Evans et al., 1994). A subsequent study evaluated a random sample of 199 children enrolled in CYICM (Evans et al., 1996b). Findings at 3-year followup indicated significant behavioral improvements and decreases in unmet medical, recreational, and educational needs compared with findings at enrollment. As in the previous study, children who had been in CYICM for 2 years had spent fewer days in psychiatric hospitals and more days in community settings during the intervals between hospitalizations. This study went further to compare their hospital utilization with that by children not enrolled in the program. Although CYICM clients spent more days in psychiatric hospitals before enrollment, they used inpatient services after enrollment significantly less than did non-enrollees. CYICM clients' hospital admissions declined fivefold after enrollment whereas among non-enrollees the decline in admission rates was less than half that value. This difference translated into a savings of almost $8,000,000 for New York State, where the project took place.

Some research has investigated the effects of extending case management on children with a dual diagnosis of a mental disorder and a substance abuse problem. Within the CYICM program, researchers looked at whether adolescents with mental disorders and substance abuse problems derived comparable benefits from the program as did those without substance abuse problems (Evans et al., 1992). No significant differences were found in the average number of inpatient admissions both before and after enrollment. There was also no significant difference between groups in the average decrease from pre- to postenrollment in the number of days spent in hospitals. These results indicate that case management can be as effective for youth presenting with substance abuse problems as for youth presenting with other psychiatric disorders.

*Team Approaches to Case Management*

Several studies assessed the value of case management as part of a treatment team. In a randomized trial in North Carolina (Burns et al., 1996), youth served by an interdisciplinary treatment team led by a case manager were compared with a control group of youth served by a treatment team led by their primary clinician in the role of case manager (also called clinician case manager). At 1-year followup, case managers in the experimental group reported spending significantly more time with their clients, as well as significantly more time on the core functions of case management (e.g., outreach; assessment of strengths, needs, and resources; service planning and monitoring; linking, referral, and advocacy; and crisis intervention). The experimental group also remained in the case-managed program longer, spent fewer days in psychiatric hospitals, and received more community-based services and a more comprehensive array of services. Although both groups showed similar clinical and functional improvements, parents of youth in the experimental group reported more satisfaction with the service system. The study concluded that traditional case managers, rather than clinician case managers, provide a more cost-effective method for attaining positive behavioral outcomes and access to mental health services.

Another example of a team approach to case management is the Family Centered Intensive Case Management (FCICM) program. This was originally created as a variation of Child and Youth Intensive Case Management in New York, with the later addition of a wraparound approach. The wraparound approach is based on a belief that the child and family should be placed at the center of an array of coordinated health and mental health, educational, and other social welfare services and resources, which a case manager wraps around the patient and family. In a randomized trial, children were assigned to either FCICM or Family-Based Treatment (Evans et al., 1996a). Family-Based Treatment included training, support, and respite care for foster families but did not include case managers.

The findings at 18 months (or at discharge) indicated that children in FCICM had significantly fewer behavioral symptoms and significantly greater improvements in overall functioning than those in Family-Based Treatment. In addition, the average annual cost of FCICM was less than half that of Family-Based Treatment.

The Fostering Individualized Assistance Program (FIAP) is an example of case management provided through a wraparound approach. The effectiveness of this model, which used clinical case managers, was compared with standard foster care in a randomized trial involving 131 children and their families (Clark et al., 1998). The most important duty of the FIAP case managers was to arrange monthly team meetings for the monitoring of individualized service plans. Although both groups showed significant improvement in their behavioral adjustment over a 3½-year period, children in the FIAP group were less likely to change placements, and boys in the group reported better social adjustment and fewer delinquencies. Older youth in the group were more likely to maintain placements in homes of relatives and less likely to run away. Youth in FIAP were also absent from school less often and spent fewer days suspended from school. Overall, youth in the FIAP group showed more improvement than did youth in standard foster care. Multiple uncontrolled studies of case management using a wraparound approach were summarized in a recent monograph focusing on the wraparound process (Burns & Goldman, 1999). Overall, the reviewed studies, although using uncontrolled methods, offer emerging evidence of the potential effectiveness of case management using a wraparound process.

While evidence is limited and many of the positive outcomes focus on service use rather than clinical status, there is some indication that case management is an effective intervention for youth with serious emotional disturbances. Studies in this area are difficult to conduct because of resource limitations and of varying approaches to case management. Agreement on standards for specific case management models is

needed in order to proceed with efficient and reliable controlled research in this area. In addition, future research needs to address the issue of cost-effectiveness, as some evidence presented above has shown savings from less utilization of institutional care.

## Home-Based Services

This section describes the strong record of effectiveness for home-based services, which provide very intensive services within the homes of children and youth with serious emotional disturbances. A major goal is to prevent an out-of-home placement (i.e., in foster care, residential, or inpatient treatment). Home-based services are usually provided through the child welfare, juvenile justice, and/or mental health systems. They are also referred to as in-home services, family preservation services, family-centered services, family-based services, or intensive family services.

Stroul (1988) identified three major goals of home-based services: to preserve the family's integrity and prevent unnecessary out-of-home placements; to put adolescents and their families in touch with community agencies and individuals, thus creating an outside support system; and to strengthen the family's coping skills and capacity to function effectively in the community after crisis treatment is completed. The specific services provided most often include evaluation, assessment, counseling, skills training, and coordination of services. The historical evolution of home-based services is discussed further under Support and Assistance for Families in Service Delivery.

The evidence for the benefits of home-based services was recently evaluated in a meta-analysis of controlled studies only (Fraser et al., 1997). The analysis referred to home-based services as "family preservation services"; these were sponsored either by the child welfare or juvenile justice systems. For 22 studies the authors analyzed specific measures such as out-of-home placement, family reunification, arrest, incarceration, and hospitalization, with the control group defined as youth receiving "usual" or "routine" services. While a majority of the studies demonstrated marginal gains in effectiveness, other services appeared to be significantly more effective than usual services.

The findings are presented below according to their organizational sponsorship by either child welfare or juvenile justice system.

## Family Preservation Programs Under the Child Welfare System

Within the child welfare system, particularly effective family reunification programs were the Homebuilders Program in Tacoma, Washington, which was designed to reunify abused and neglected children with their families by providing family-based services (Fraser et al., 1996), and the family reunification programs in Washington State and in Utah (Pecora et al., 1991). Studies suggested that 75 to 90 percent of the children and adolescents who participated in such programs subsequently did not require placement outside the home. The youths' verbal and physical aggression decreased, and cost of services was reduced (Hinckley & Ellis, 1985). The success of these family preservation programs is based on the following: services are delivered in a home and community setting; family members are viewed as colleagues in defining a service plan; back-up services are available 24 hours a day; skills are built according to the individual needs of family members; marital and family interventions are offered; community services are efficiently coordinated; and assistance with basic needs such as food, housing, and clothing is given (Fraser et al., 1997).

## Multisystemic Therapy

Multisystemic therapy programs within the juvenile justice system have demonstrated effectiveness. MST is an intensive, short-term, home- and family-focused treatment approach for youth with severe emotional disturbances. MST was originally based on risk factors that were identified in the published literature and was designed for delinquents. MST intervenes directly in the youth's family, peer group, school, and neighborhood by identifying and targeting factors that contribute to the youth's problem behaviors. The main goal of MST is to develop skills in both parents and community organizations affecting the youth that will endure after brief (3 to 4 months) and intensive